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Annual Report 2005

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คำนำ

สถาบันวิจัยวิทยาศาสตร์การแพทย์ทหาร ปัจจุบันอายุย่างเข้าขวบปีที่สี่สิบห้าแล้ว นับแต่ก่อตั้งมา หน่วยงานนี้ได้เติบโตอย่างต่อเนื่องจนมีเกียรติภูมิเป็นสถาบันทางวิทยาศาสตร์ที่ได้รับการยกย่องและเชื่อถือ แม้ว่าจะผ่านการเปลี่ยนแปลงและได้รับผลกระทบจากปัจจัยภายนอกอยู่บ้างแต่สถาบันวิจัยวิทยาศาสตร์การแพทย์ทหารก็สามารถผ่านพ้นวิกฤติเหล่านั้นมาได้ด้วยดี มีความแข็งแกร่งและเจริญรุ่งเรืองโดยลำดับ เมื่อมองกันในแง่หน่วยงานแห่งหนึ่ง พลังของสถาบันแห่งนี้อยู่ที่ตัวบุคลากรของสถาบันนั่นเอง เห็นได้จากบุคลากรผู้เป็นนักวิทยาศาสตร์ที่มีผลงานวิจัยเป็นที่เชื่อถือทั่วไปในปัจจุบันและจากอดีตบุคลากรที่ปัจจุบันก็ไปสร้างผลงานอยู่ในหลายหน่วยงานทั่วโลก การร่วมมือกันยาวนานถึงสี่สิบห้าปีระหว่างกองทัพบกสหรัฐฯ และกองทัพบกไทยนี้เป็นสิ่งซึ่งไม่มีที่ไหนเหมือนและเห็นแน่ชัดว่าก่อเกิดผลงานอย่างดีเยี่ยม ถึงแม้ว่าจะมีบุคลากรไปมาตลอดเวลาทั้งในฝ่ายไทยและฝ่ายสหรัฐฯ ทว่าสิ่งซึ่งเป็นคุณลักษณะอันคงเส้นคงวาไม่เปลี่ยนแปลงไปเลยก็คือ สำนึกในเรื่องเป้าประสงค์ร่วมกัน ความร่วมมือร่วมใจ ความนับถือซึ่งกันและกันอันก่อกำเนิดมาจากการยอมรับว่าต่างฝ่ายต่างก็มุ่งมั่นอุทิศตนเพื่อความเป็นเลิศ ทั้งหลายเหล่านี้เป็นเอกลักษณ์แห่งการทำงานร่วมกัน ณ สถาบันวิจัยวิทยาศาสตร์การแพทย์ทหารแห่งนี้ ขอให้สถาบันวิจัยวิทยาศาสตร์การแพทย์ทหารจงเจริญยิ่งๆขึ้นไปเทอญ

พลตรี

(สืบพงษ์ สังขะรมย์)

ผอ.สวพท.พบ.

Foreword

AFRIMS is now in her 45th year. Over the years she has continued to grow in stature and prestige as a well-respected scientific institution. Despite the dynamic interaction with external circumstances, favorable or otherwise, AFRIMS has emerged stronger and better than ever. As an institution, the strength of AFRIMS lies in her peopleware as attested by the present staffs and the large number of AFRIMS alumni working globally. The 45-years old US Army-Royal Thai Army collaboration on medical research is unique and evidently productive. Although people comes and goes all the time at AFRIMS; the sense of purpose, the spirit of co-operation, the mutual respect born out of the recognition of each others dedication to excellence; all these have continued to be constant features of the collaboration at AFRIMS. May AFRIMS continue to serve as productively as ever.

MG

(Suebpong Sangkharomya)
Director General AFRIMS

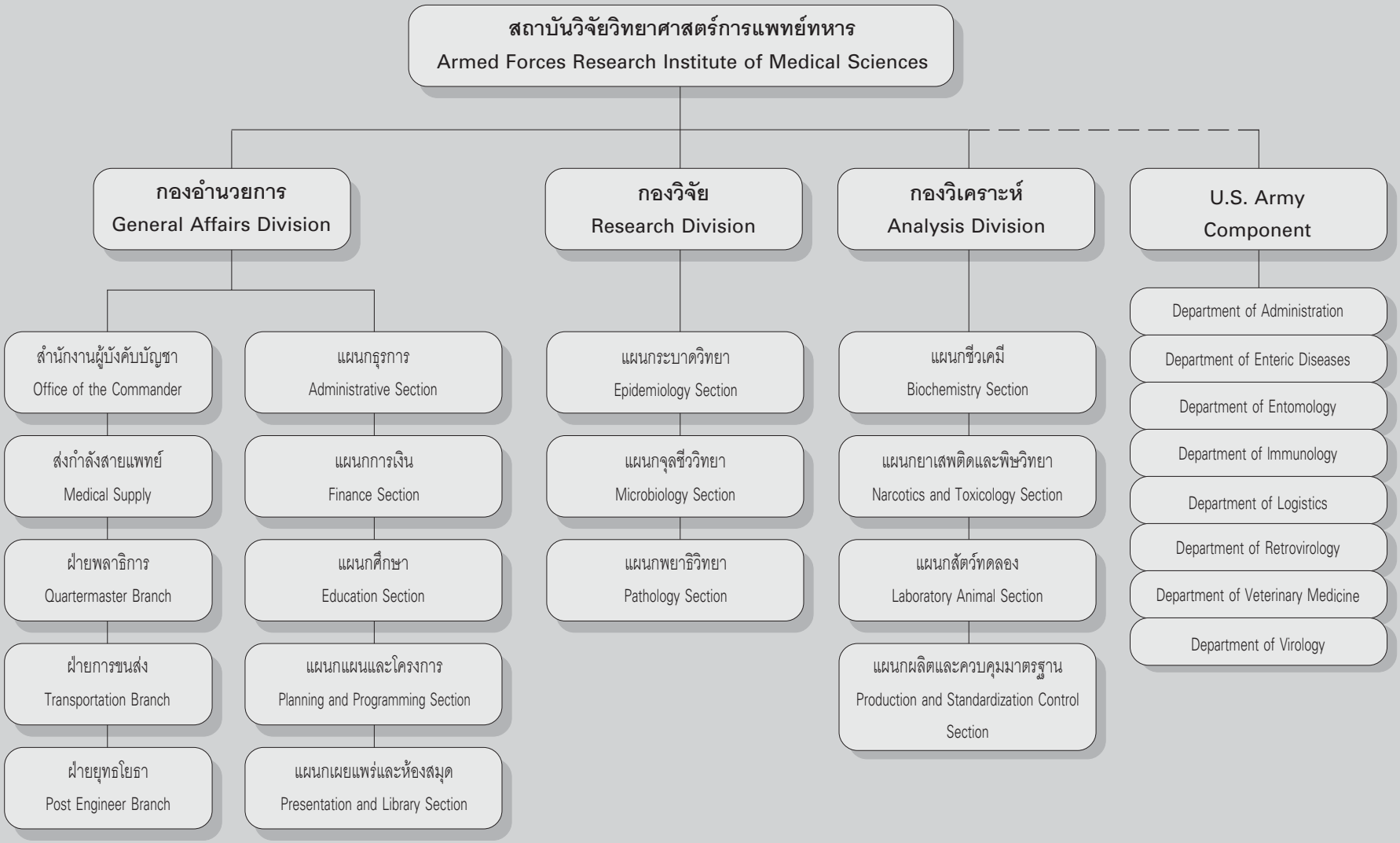
Foreword

The United States Army Medical Component-Armed Forces Research Institute of Medical Sciences (USAMC-AFRIMS) began 2005 with several of its staff deployed in support of the humanitarian relief effort to areas devastated by the Tsunami. After the initial emergency response, there was heightened concern about a potential malaria outbreak in the affected region. AFRIMS scientists were able to determine that there were no significant increases in malaria vectors associated with the disaster and medical surveillance data indicated that the incidence of malaria did not increase. This work underscores the importance of soldier-scientists who are capable of taking their scientific expertise to the field and answering important public health questions in a timely manner.

The diverse laboratory and field research underway at AFRIMS and its auxiliary sites is truly remarkable. Evaluation of *Shigella* vaccine candidates in primate models and human subjects, the molecular and phenotypic characterization of *Campylobacter jejuni* isolates, and work on the etiology of diarrheal disease and antibiotic resistance at selected regional sites attracted a number of partners to AFRIMS. The establishment of the Walter Reed Army Research Unit Nepal (WARUN) as a Global Emerging Infections System (GEIS) field station proved fortuitous, as it allowed AFRIMS access to samples drawn during a major influenza outbreak in Nepal. These samples provided a strain selected by the World Health Organization for inclusion into the annual northern hemisphere influenza vaccine. In the realm of malaria research, our scientists developed methods to produce *Plasmodium vivax*-infected mosquitoes to support a sporozoite-challenge model for *P. vivax* vaccine development and they participated in preclinical safety and immunogenicity studies for RTS,S, the most advanced malaria vaccine in clinical development. AFRIMS scientists conducted comparisons of malaria transmission in China, Korea and Thailand with an emphasis on identifying differences in the biology of parasites and the *Anopheles* vectors. AFRIMS endeavors to combat dengue, a major emerging pathogen throughout the world, included vaccine trials, viral molecular studies, host immunity and pathophysiology projects, vector studies, and clinical epidemiology. AFRIMS continued to support the Thai Ministry of Public Health in the world's largest phase III human immunodeficiency virus (HIV) vaccine trial. The recognition afforded AFRIMS scientists at international meetings for these and many other research protocols points towards a positive future in our work to combat the tropical diseases that still threaten millions of children and adults worldwide.

Bonnie L. Smoak

BONNIE L. SMOAK
Colonel, Medical Corps
Commanding
USAMC-AFRIMS



ผังการจัดองค์กรของสถาบันวิจัยวิทยาศาสตร์การแพทย์ทหาร กรมแพทย์ทหารบก

สารบัญ

การใช้เทคนิค Multiplex PCR-RFLP ในการศึกษาระบาดวิทยาของเชื้อก่อโรค สกุลริคเค็ทเซีย ในประเทศไทย Epidermiological study of pathogenic rickettsiae in Thailand utilizing multiplex PCR-RFLP technique....1
การประเมินสถานการณ์โรคติดเชื้อริคเค็ทเซียจากงานบริการตรวจวินิจฉัยทางห้องปฏิบัติการ....3
การตรวจหาเชื้อเลปโตสไปราสายพันธุ์ก่อโรคในตัวอย่างน้ำสิ่งแวดล้อมอย่างรวดเร็วด้วยวิธี Duplex Polymerase Chain Reaction (Duplex-PCR)....5
การเตรียมการด้านห้องปฏิบัติการในการตรวจเพื่อประเมินอุบัติการณ์การติดเชื้อเอชไอวีโดยวิธี IgG Capture BED EIA ในทหารกองประจำการ....6
การปรับเปลี่ยนพฤติกรรมเสี่ยงต่อการติดโรคเอดส์ในกลุ่มทหาร จังหวัดกาญจนบุรี....7
การเฝ้าตรวจคุณภาพน้ำในที่ตั้งหน่วยทหาร....18
การเฝ้าตรวจหาสารเสพติดให้โทษ....20
การเฝ้าระวังโรคที่เป็นอุปสรรคต่อการปฏิบัติการทางทหาร....22
การพบเชื้อ *Coxeilla* spp. ในเห็บที่เก็บจากสุนัขเลี้ยง บริเวณบ้านพักอาศัยในพื้นที่กรุงเทพมหานคร และเขตปริมณฑล *Coxeilla* spp. in dog ticks collected from house-hold pets in Bangkok and vicinity....27
การศึกษาแนวทางการจัดการคุณภาพน้ำเสียในชุมชน กองพันทหารราบที่ 1 กรมทหารราบที่ 11 รักษาพระองค์....28
การศึกษาและงานบริการการตรวจวินิจฉัยโรคติดต่อทางเพศสัมพันธ์....39
การศึกษาอัตราความชุก *Chlamydia pneumoniae* ในผู้ป่วยโรคหัวใจที่มารับบริการ ณ.โรงพยาบาลพระมงกุฎเกล้า....41
การสำรวจสัตว์รังโรคและพาหะนำโรคสครับไทฟัสในพื้นที่หลบภัยคลื่นยักษ์สึนามิ บริเวณอุทยานแห่งชาติเขาหลัก-ลำรู อ.ท้ายเหมือง จว.พังงา....55
ความชุกของการติดเชื้อเอชไอวี-1 ในชายไทยที่ผ่านการตรวจเลือกเข้าเป็นทหารกองประจำการ กองทัพบก....58
โครงการพัฒนาระบบสารสนเทศตามแนวชายแดน เพื่อแจ้งเตือนภัยคุกคามทางการแพทย์แจ้งเตือนภัยคุกคามทางการแพทย์....60
ปริมาณ CD38 บนผิวของ ที-ลิมโฟซัยท์ ชนิด CD8 และ CD3 ในคนไทยวัยผู้ใหญ่ที่ไม่ติดเชื้อ HIV....64
สภาวะสุขภาพและพฤติกรรมเสี่ยงในข้าราชการทหาร เขตกรุงเทพมหานครและปริมณฑล ประจำปี 2546-2548....66

A longitudinal study of autologous neutralizing antibodies in HIV-1 subtype CRF01_AE infected Thai rapid progressors....68
An outbreak of Leptospirosis, Thailand-the importance of the laboratory....69
Assessment of southern blot ribotyping for differentiation of Thai isolated Leptospires....70
Authentic animal reservoirs of Leptospirosis in Thailand....72
Binding antibody to neutralizing epitope gp41 in HIV-1 subtype CRF 01_AE infection related to stage of disease....73
Comparison of novel elisa - and real-time PCR-BASED in vitro drug sensitivity assays for *Plasmodium falciparum*....74
Comparison of peripheral blood mononuclear cells and whole blood lymphocyte proliferation assays in healthy Thai blood donors....75
Detection and differentiation of leptospira species by multiplex polymerase chain reaction....76
Early diagnosis of Leptospirosis by multiplex polymerase chain reaction....78
Health problem among RTA personnel in Bangkok and its perimeter in the year 2004....79
HIV/AIDS interventions in the uniformed services....80
Inestigation of arthropod vectors and reservoir hosts for orientia tsutsugamushi in army training ground, Borthong district, Chonburiprovince, Thailand....81
Keep high cholesterol away by diet therapy....82
Mixed leptospire infection of small mammals in Thailand....83
Molecular cloning, expression and characterization of the Rickettsial response regulator protein homolog....84
Molecular epidemiology of pathogenic Rickettsiae in Thailand....85
No significant difference between lymphoproliferative responses measured in acid citrate dextrose and heparinized blood from healthy Thais....86
Pathogenesis study of Leptospirosis in hamsters infected with *Leptospira* isolate from outbreak area....87
Phenotypic characterization and coreceptor usage of HIV-1 subtype CRF01_AE (E) isolates in Thai rapid progressors....89
Potent cross-reactive neutralizing monoclonal antibodies against Leptospira interrogans infection to vero cells....90

Revalence and in vitro isolation of anaplasma sp.in
black-legged ticks collected from white-tailed deer.....91
Serodiagnosis of human Leptospirosis by immunodot assay using triton X-114
extraction lipoprotein antigens from outer membrane of endemic
leptospiral serovar.....92
Studies on the potential use of CD38 expression as a marker for the efficacy
of anti-retroviral therapy in HIV-1-infected patients in Thailand.....93
Surveillance of malaria infection in Royal Thai Army areas of operation (ao)
along Thai-Myanmar border during 2001 to 2004.....94
Survey of Leptospirosis of sall mammals in Thailand.....95
The collaborative neuro AIDS research study in Thailand between armed
forces research institute of medical sciences Royal Thai Army,phramongkutklao
medical center and university of Hawaii: laboratory research aspects.....96
The development of HIV research laboratories in the Royal Thai Army medical
department.....97
Two simple immunoassays using endemic Leptospiral antigens
for serodiagnosis of human Leptospirosis.....98

DENGUE

An analysis of sequential dengue tests 99
Characterization of dengue-2 virus binding to surfaces of mammalian and insect cells 99
Clade extinction and replacements in dengue virus serotype 1 is associated with changing serotype prevalence 100
Clade replacements in dengue virus serotypes 1 and 3 are associated with changing serotype prevalence 100
Dengue genotypes circulating in Asia and the Americas 100
Dengue virus (DV) enhancing antibody activity in preillness plasma does not predict subsequent disease severity or viremia in secondary DV infection 101
Detection of plasma leakage in dengue infected patients by serial ultrasonographic studies 101
Dynamics of dengue virus transmission within Thai villages 102
Economic impact of dengue fever/dengue hemorrhagic fever in Thailand at the family and population levels 102
Frequency and phenotypic analysis of dengue epitope-specific T cells in infected Thai subjects during acute illness 103
Identification of putative receptor molecules for dengue virus from mosquito cell line 104
Immunopathogenesis of DHF 104
Improved sensitivity of dengue virus detection by reverse transcription-polymerase chain reaction (RT-PCR) using whole blood compared to serum or plasma 105
Improved sensitivity of dengue virus detection by the reverse transcription-polymerase chain reaction (RT-PCR) using QIAamp viral RNA kit compared to TRIzol 105
Molecular characterization of dengue virus serotype 3 sampled early in a 2005 outbreak in Timor-Laste 106
Molecular characterization of dengue viruses circulating in Thailand 107
Nitric oxide radical suppresses replication of wild-type dengue 2 viruses *in vitro* 108
A phase 1/2 trial of a tetravalent live-attenuated dengue vaccine in flavivirus-naive Thai infants 108
Randomized, placebo-controlled trial of nonpegylated and pegylated forms of recombinant human alpha interferon 2a for suppression of dengue virus viremia in rhesus monkeys 109
The role of pre-existing dengue virus (DV)-specific antibody-dependent cellular cytotoxicity in heterologous secondary dengue virus infections 110
Role of WHO CCs and other labs / improve implementation of DengueNet 111
Sensitivity of dengue virus isolation by C6/36 cell culture and mosquito inoculation of nested RT-PCR positive clinical samples 111
Sequential serologic and virologic data in children hospitalized with dengue in Kamphaeng Phet, Thailand 112
Serology/virology of dengue 112
The structure of genetic diversity and the evolutionary processes of dengue viruses circulating in Thailand 113

ENTERIC DISEASES

Detection and sequence analysis of noroviruses in travelers with gastroenteritis in Bangkok, Thailand 113
Epidemiologic study of diarrheal disease in US forces deployed to Thailand for operation cobra gold during 1996-2004 114
Epidemiology of typhoid and paratyphoid fever in Kathmandu: two years study and trends of antimicrobial resistance 115
Immune responses to *Campylobacter* infection among US forces deployed to Thailand (2002-2004) 116
Outbreak of typhoid fever, western province, Kenya – 2004 116
PFGE and serotypes of clinical *Campylobacter jejuni* isolates from travelers in Thailand during 1998-2003 117
Seroepidemiological study of diarrheal disease in US forces deployed to Thailand for operation cobra gold (2002-2004) 118
Serotype distribution, quinolone and macrolide resistance among *Campylobacter jejuni* and *Campylobacter coli* isolated from Thai children during 1991-2000 118
Typhoid fever: a massive, single-point source, multidrug-resistant outbreak in Nepal 119

ENTERIC PATHOGENS

Development and evaluation of *Fla*- and *ViaB*-Base TaqMan PCR assays for identification of *Salmonella* spp. and *S. typhi* 120
A development of TaqMan-PCR assays for detection and characterization of heat-labile I and heat-stable I enterotoxin genes from enterotoxigenic *Escherichia coli* 121
Mosaic structure of a multiple-drug-resistant, conjugative plasmid from *Campylobacter jejuni* 121
Phenotypic and genotypic characterization of *Vibrio parahaemolyticus* isolated from Thailand in 2001-2002 122
Reevaluation of MSRV medium for isolation of *Salmonella* species from human stool samples 123
Trends in antibiotic resistance among enteric pathogens isolated in Nepal 123

HIV

Circulating proviral HIV DNA and HIV-associated dementia 124
Discordant plasma and cerebral spinal fluid cytokines/chemokines in relation to HIV-1-associated dementia 124
Functional variation of HIV-1 rev response element in a longitudinally studied cohort 125
HIV-associated wasting in the era of highly active antiretroviral therapy: a syndrome of residual HIV infection in monocytes and macrophages? 125
Human MHC diversity and the molecular epidemiology of HIV-1 in Southeast Asia 126
Novel genotyping tool for complex HIV-1 epidemics in Southeast Asia 126
On-Site assessment of quality assurance (QA) programs for anti-HIV testing among 65-HIV testing laboratories in Thailand 127

HIV, VACCINE

Antibody-dependent cell-mediated cytotoxic responses in participants enrolled in a phase I/II ALVAC-HIV/AIDSVAX® B/E prime-boost HIV-1 vaccine trial in Thailand 128
Behavioral and social issues among volunteers in a preventive HIV vaccine trial in Thailand 128
Biologic and genetic characterization of a panel of 60 human immunodeficiency virus type 1 isolates, representing clades A, B, C, D, CRF01_AE, and CRF02_AG, for the development and assessment of candidate vaccines 129
Characterization of cellular immunity for evaluation of immune responses in phase III HIV vaccine trial 129
Epidemiology of HIV infections among screened volunteers participated in an HIV vaccine phase III trial, Thailand 130
International collaboration in data management for a large scale phase III vaccine trial, Thailand 131
Phase V trial of HIV prime-boost vaccine combination in Thailand 131
The phase III prime-boost HIV vaccine trial in Thailand: model for multi-sectoral collaboration 132
Rationales for not enrolment into a phase III trial of aventis pasteur live recombinant alvac-HIV (VCP 1521) priming with vaxgen gp120 B/E (AIDSVAX B/E) boosting in HIV-uninfected Thai adults 133
Serologic testing of HIV vaccine trial volunteers (phase I, II) with different HIV-antibody commercial test kits 133
Social impact of participation in a phase III HIV vaccine trial in Thailand 134
Sources of volunteer's perception of the prime-boost HIV vaccine trial and the decision to participate 135
An update of progress in the Thai HIV prime boost vaccine trial: VCP1521 (ALVAC-HIV) + gp120 B/E (AIDSVAX B/E) 135

INFECTIOUS DISEASES

Causes of fever in hospital patients in Sangkhlaburi district, Thailand 136
High rates of apoptosis in human *Mycobacterium ulcerans* culture-positive buruli ulcer skin lesions 136
Syndromic surveillance: where's the data? where to start? 137
Transnational outbreak response cooperation: recent experience of the US Department of Defense Global Emerging Infections Surveillance and Response System (DoD-GEIS) 138

INFLUENZA

H3N2 influenza a outbreak in southeast Nepal 138
Hemagglutinin analysis of isolates from an influenza A (H3N2) outbreak in southeast Nepal 139
Influenza A (H3N2) outbreak, Nepal 140
Influenza B outbreak in southeast Nepal 140

LEPTOSPIROSIS

Evaluation of leptospirosis by polymerase chain reaction (PCR) in cultured samples and culture positive packed red blood cells 141
Leptospirosis in Kamphaeng Phet 142

MALARIA

Acute renal failure associated with severe *Plasmodium cynomolgi* infection in *Rhesus macaques* 142
Genome-wide expression profiling in malaria infection reveals transcriptional changes associated with lethal and non-lethal outcome 143
Malaria diagnosis: performance of NOW® ICT malaria in a large scale field trial..... 144
Naturally acquired malaria transmission blocking immunity in Thailand..... 144
Sources of variability in determining malaria parasite density by microscopy 145
Spatio-temporal distribution of *Plasmodium falciparum* and *P. vivax* malaria in Thailand 145
White blood cell counts and malaria..... 146

MALARIA, DRUGS

Antimalarial activities and therapeutic properties of febrifugine analogs 146
Antimalarial activity of 4(1H)-quinolones..... 147
Antimalarial drug resistance in Isiolo, Kenya..... 147
Artelinate administered intravenously to rhesus monkeys (*Macaca mulatta*): a neurology and neuropathology study. I. The medulla oblongata, pons, and cerebellum..... 148
Artemisinin resistance: how can we find it? 149
Artesunate administered intravenously to rhesus monkeys (*Macaca mulatta*): a neurology and neuropathology study. I. The medulla oblongata, pons, and cerebellum 149
Artesunate administered intravenously to rhesus monkeys (*Macaca mulatta*): a neurology and neuropathology study. III. Brainstem auditory visual systems nuclear groups 150
Azithromycin combination therapy with artesunate or quinine for the treatment of uncomplicated *falciparum* malaria in adults. Preliminary results from a randomized phase 2 clinical trial in Thailand 151
Azithromycin in combination with artesunate or quinine for the treatment of uncomplicated *falciparum* in adults: a randomized phase 2 clinical trial in Thailand 152
A case-control study examining recent antimalarial use among patients admitted with malaria and other febrile illnesses in Kenya 152
Drug sensitivity of *Plasmodium falciparum* along the Thai-Myanmar border using the new field-deployable HRP2 *in vitro* assay 153
Efficacy of methylene blue and artesunate as combination antimalarial therapy in a rhesus monkey model of uncomplicated blood-stage malaria 154
In vivo drug interaction studies of artesunate using rhesus monkeys and LC/MS analysis.....154

MALARIA, DRUGS (cont.)

LC/MS analysis of artesunate and dihydroartemisinin in plasma following a single step protein precipitation 155
Pfmdr1 genotyping and *in vivo* mefloquine resistance on the Thai-Myanmar border 155
A pharmacokinetic/pharmacodynamic screening model for lead antimalarials and their active metabolites in rhesus monkeys 156
Randomized, controlled, double-blind trial of daily oral azithromycin in adults for the prophylaxis of *Plasmodium vivax* malaria in western Thailand 157
A randomized, double blinded study of the efficacy and safety of tafenoquine monotherapy for the treatment of *Plasmodium vivax* in adults 157
Recent antimalarial treatment among Kenyan adults presenting to clinics with positive malaria smears 158
Simple histidine-rich protein 2 double-site sandwich enzyme-linked immunosorbent assay for use in malaria drug sensitivity testing 159

MALARIA, VACCINE

Heterologous prime-boost immunization with epidermal gene gun administered *Plasmodium falciparum* circumsporozoite protein (CSP) encoding DNA and intramuscular RTS,S/AS02A in rhesus monkeys generates robust cutaneous delayed-type hypersensitivity responses against CSP C terminus 159
High-throughput screening for asexual blood stage *Plasmodium falciparum* vaccine candidates 160
Long-term, protective immune response of mice following immunization with the carboxy-terminal 19kDa-fragement of *P. yoelii* ($MSP1_{19}$) formulated with montanide ISA51 and CpG oligodeoxynucleotide 160
Nasal immunization with a malaria transmission-blocking vaccine candidate, Pfs25, induces complete protective immunity in mice against field isolates of *Plasmodium falciparum* 161
Phase 1 vaccine trial of Pvs25H: a transmission blocking vaccine for *Plasmodium vivax* malaria 162
Screening of novel malaria transmission-blocking vaccine candidates using wheat germ cell-free protein synthesis system 162
A single dose of *Plasmodium yoelii* $MSP1_{19}$ immunization formulated with montanide ISA51 and CpG oligodeoxy-nucleotide is enough to induce protection against *P. yoelii* infection 163
Towards an RTS,S-based, multi-stage, multi-antigen vaccine against *falciparum* malaria: progress at the Walter Reed Army Institute of Research 163
Wheat germ cell-free system: a powerful tool to identify novel vaccine candidates based on the *Plasmodium falciparum* genome database 164

MONOCYTE RESPONSE

Characterization of circulating monocytes expressing HLA-DR or CD71 and related soluble factors for 2 weeks after severe, non-thermal injury 165

MOSQUITOES

Anopheles kleine; new potential vector of *Plasmodium vivax* in the Republic of Korea 165
Bottle and biochemical assays on temephos resistance in *Aedes aegypti* in Thailand 166
Dengue knowledge and practices and their impact on *Aedes aegypti* populations in Kamphaeng Phet, Thailand 167
Discrimination of malaria vectors in the *Anopheles sinensis* complex from South Korea 167
Dispersal of the dengue vector *Aedes aegypti* within and between rural communities 168
An experimental study of the effect of temperature on the biology of *Anopheles* sp. (diptera: culicidae) in the laboratory 168
Genetic structure of *Aedes aegypti* populations in Thailand using mitochondrial DNA 169
Identification and characterization of larval and adult anopheline mosquito habitats in the Republic of Korea: potential use of remotely sensed data to estimate mosquito distributions 169
Identification of larval anopheline habitats in the Republic of Korea using remote sensing 170
Ikonos-derived malaria transmission risk in northwestern Thailand 170
Illustrated keys to the mosquitoes of Thailand I. Background; geographic distribution; lists of genera, subgenera, and species; and a key to the genera 171
Illustrated keys to the mosquitoes of Thailand. II. Genera *Culex* and *Lutzia* 172
Laboratory and field evaluation of mosquito dunks against *Aedes aegypti* larvae (Diptera: Culicidae) 172
Laboratory and semi-field evaluation of VectoBac® WDG against mosquito larvae based on water usage 172
Meconial peritrophic matrix structure, formation and meconial degeneration in mosquito pupae/pharate adults: histological and ultrastructural aspects 173
Molecular discrimination of the *Anophetes hyrcanus* group from South Korea using restriction fragment length polymorphism technique 173
Morphological variations of *Anopheles minimus* A in Tak province, Thailand 174
Soil analysis around Anopheline breeding habitats in north-western Thailand 174
Synthetic pyrethroid susceptibility tests by microplate and WHO methods in *Anopheles minimus* and *Anopheles maculatus* in Thailand 175
Use of a remote sensing-based Geographic Information System in the characterizing spatial patterns for *Anopheles minimus* A and C breeding habitats in western Thailand 175
Using a dynamic hydrology model to quantify seasonal changes in breeding habitat preferences of *Anopheles* larvae in western Thailand 176
Water quality and breeding habitats of anopheline mosquito in northwestern Thailand 176

NATURAL DISASTERS & HEALTH

Health concerns associated with disaster victim identification after a tsunami -- Thailand, December 26, 2004-March 31, 2005 177
Rapid health response, assessment, and surveillance after a tsunami -- Thailand, 2004–2005 178
Rapid health response, assessment, and surveillance after a tsunami -- Thailand, 2004-2005 178

PARASITES

Intestinal parasite infections among pre-school children in Sangkhlaburi, Thailand 179
Re-evaluation of commercially available enzyme-linked immunosorbent assay for the detection of *Giardia lamblia* and *Cryptosporidium* spp from stool samples 180
Significantly increased recovery of intestinal parasites on routine stool specimen evaluation 180

PLASMODIUM

Comparative susceptibility of *Plasmodium vivax* between *Anopheles sinensis* and *An. anthropophagus* laboratory – reared strains in China 181
Comparative susceptibility of wild-caught (F1) and laboratory colonized mosquitoes to *Plasmodium vivax* in Thailand 181
Establishment of erythropoietic cells *in vitro* for continuous culture of *Plasmodium vivax* 182
Evaluation of procedures to determine absolute density of *Plasmodium vivax* ookinetes 183
Gene discovery in *Plasmodium vivax* through sequencing of ESTs from mixed blood stages 183
Genetic analysis of dihydrofolate reductase and dihydropteroate synthase of *Plasmodium vivax* isolates from the Republic of Korea 184
Genetic diversity of merozoite surface protein 1 of *Plasmodium vivax* isolates from the Republic of Korea 184
Measuring allelic heterogeneity in *Plasmodium falciparum* by a heteroduplex tracking assay 185
Molecular evolution and intragenic recombination of the merozoite surface protein MSP-3α from the malaria parasite *Plasmodium vivax* in Thailand 185

REAGENT KITS, DIAGNOSTIC

Short report: prospective evaluation of a multi-test strip for the diagnoses of scrub and murine typhus, leptospirosis, dengue fever, and *Salmonella typhi* infection 186

RICKETTSIAE

Cynomolgus monkeys infected with *Orientia tsutsugamushi* (Karp) by intradermal inoculation develop eschar-like lesions and lymphadenopathy akin to human scrub typhus 186
Human infection with *Rickettsia honei*, Thailand 187

RICKETTSIAE (cont.)

Molecular epidemiology of pathogenic *Rickettsiae* in Thailand 187
Use of GIS to assess relative risk in different biotopes within endemic scrub typhus areas 188

VIRAL DIAGNOSIS

Dengue and/or Japanese encephalitis laboratory diagnosis 188

VIRAL ENCEPHALITIS

Lessons to be learned in the field deployment of the AFRIMS JE ELISA kit 188
Neuropathological studies of Japanese encephalitis virus in humans and a mouse model 189
Simplified diagnostics for JE determination: a head-to-head comparison of *3 IgM ELISA* kits 190

VIRAL HEPATITIS

Ecology and epidemiology of viral hepatitis 190
Evaluation of a new rapid immunochromatographic assay for serodiagnosis of acute hepatitis E infection 190
Hepatitis E vaccine trial in Royal Nepalese Army (RNA) soldiers 191
Safety and efficacy of a recombinant hepatitis E vaccine trial conducted in Nepal 191
Summary of the safety and immunogenicity of a recombinant hepatitis E vaccine 191

VIRAL INFECTION

Arboviral IgG antibody prevalence in three Kenyan districts 192
Pathogenesis of Rift Valley fever virus in mosquitoes–tracheal conduits the basal lamina as an extra-cellular barrier 192

VIRAL VACCINE

Monkey viraemia models / severity of dengue following JE vaccination: study proposal 193